

## CLAIMS

What is claimed is:

1. A method for use with a first wireless transmit/receive unit (WTRU) located near a periphery of a cell in a wireless communication system, the method comprising:

determining at least one WTRU near the periphery of other cells;  
out of the at least one WTRU near the periphery, determining at least one WTRU nearby that WTRU;  
providing the first WTRU codes of the at least one nearby WTRU; and  
canceling a contribution of the at least one nearby WTRU from a received signal, producing an interference canceled signal; and  
detecting data of the first WTRU from the interference canceled signal.

2. The method of claim 1 wherein the determining the at least one WTRU near the periphery of other cells includes determining WTRUs of the other cells having a highest transmission power level to determine the at least one WTRU near the periphery of the other cells.

3. The method of claim 1 wherein the determining the at least one WTRU near the periphery of other cells includes determining WTRUs of the other cells having a highest pathloss to determine the at least one WTRU near the periphery of the other cells.

4. The method of claim 1 wherein the determining the at least one WTRU near the periphery of other cells includes determining locations of WTRUs of the other cells and using a map of the other cells to determine the at least one WTRU near the periphery of the other cells.

5. The method of claim 1 wherein the determining the nearby WTRU comprises comparing a location of other cells WTRUs to a location of the first WTRU.

6. The method of claim 1 wherein the determining the nearby WTRU comprises determining out of the at least one near the periphery WTRU at least one WTRU in a sector abutting a sector of the first WTRU.

7. The method of claim 1 wherein the determining the nearby WTRU comprises determining WTRUs transmitting in a frequency having a large measured interference.

8. The method of claim 1 wherein the determining the nearby WTRU comprises determining WTRUs transmitting in a time slot having a large measured interference.

9. The method of claim 1 wherein only WTRUs in a cell having a highest received signal strength are considered as being the at least one nearby WTRU.

10. A first wireless transmit/receive unit (WTRU) capable of canceling interference from a second WTRU in a neighboring cell, the first WTRU comprising:

an antenna for receiving signals including a first signal of the first WTRU, a second signal of the second WTRU and a third signal indicating a code of the second signal;

a signal receiver for determining the second signal code using the received third signal;

an interference canceller for canceling the second signal from the received signals, producing an interference canceled signal; and

a data detection device having an input configured to receive the interference canceled signal for detecting data of the first signal.

11. The first WTRU of claim 10 wherein the interference canceller includes:  
a second code generation device for producing a code of the second signal;  
a weighting device, coupled to a root mean squares (RMS) measuring device, for weighting the produced code;  
a subtractor for subtracting the weighted produced code from the received signals, producing a subtracted signal;  
the RMS measuring device for measuring a RMS of the subtracted signal; and  
a data detector having an input configured to receive the subtracted signal for detecting data of the first signal.

12. The first WTRU of claim 10 wherein the interference canceller includes;  
a second WTRU joint detector for detecting data of the second signal using the second code;  
an interference reconstruction device for producing a contribution of the second signal to the received signals;  
a subtractor for subtracting the second signal contribution from the received signals, producing a subtracted signal; and  
a joint detector having an input configured to receive the subtracted signal and for detecting data of the first signal.

13. A first wireless transmit/receive unit (WTRU) capable of canceling interference from a second WTRU in a neighboring cell, the first WTRU comprising:  
means for receiving signals including a first signal of the first WTRU, a second signal of the second WTRU and a third signal indicating a code of the second signal;  
means for determining the second signal code using the received third signal;  
means for canceling the second signal from the received signals, producing an interference canceled signal; and

data detection means having an input configured to receive the interference canceled signal for detecting data of the first signal.

14. The first WTRU of claim 10 wherein the means for canceling includes:  
a second code generation device for producing a code of the second signal;  
a weighting device, coupled to a root mean squares (RMS) measuring device, for weighting the produced code;  
a subtractor for subtracting the weighted produced code from the received signals, producing a subtracted signal;  
the RMS measuring device for measuring a RMS of the subtracted signal; and  
a data detector having an input configured to receive the subtracted signal for detecting data of the first signal.

15. The first WTRU of claim 10 wherein the means for canceling includes;  
a second WTRU joint detector for detecting data of the second signal using the second code;  
an interference reconstruction device for producing a contribution of the second signal to the received signals;  
a subtractor for subtracting the second signal contribution from the received signals, producing a subtracted signal; and  
a joint detector having an input configured to receive the subtracted signal and for detecting data of the first signal.